

Amendments to the Claims:

This listing of the claims will replace all prior versions, and listings, of the claims in the application:

- 1 1. (Currently Amended) An integrated circuit, comprising:
  - 2 a lead frame having a plurality of leads;
  - 3 a current conductor portion comprising a coupling of at least two of the plurality of leads;
  - 4 a substrate having first and second opposing surfaces, the a first surface proximate to said
  - 5 current conductor portion and the a second surface distal from said current conductor portion;
  - 6 wherein said substrate is disposed having the first surface of said substrate above said current
  - 7 conductor portion and the second surface above the first surface when the leads are in electrical
  - 8 contact with an uppermost surface of a circuit board; and
  - 9 one or more magnetic field transducers disposed on the first surface of said substrate.
- 1 2. (Cancelled)
- 1 3. (Cancelled)
- 1 4. (Original) The integrated circuit of Claim 1, wherein said current conductor portion further  
2 comprises a conductive clip coupled to the at least two of the plurality of leads.
- 1 5. (Original) The integrated circuit of Claim 4, wherein said substrate is disposed having the  
2 first surface of said substrate above said conductive clip and the second surface of said substrate  
3 above the first surface.
- 1 6. (Original) The integrated circuit of Claim 4, wherein said substrate is disposed having the  
2 first surface of said substrate below said conductive clip and the second surface below the first  
3 surface.

1 7. (Original) The integrated circuit of Claim 4, wherein a thickness of the conductive clip is  
2 selected in accordance with a current passing through the conductive clip.

1 8. (Original) The integrated circuit of Claim 1, wherein said substrate has at least one bonding  
2 pad coupled to a corresponding one of the plurality of leads with a bond wire.

1 9. (Original) The integrated circuit of Claim 1, wherein said substrate is associated with a  
2 selected one of a solder ball, a gold bump, a eutectic and high lead solder bump, a no-lead solder  
3 bump, a gold stud bump, a polymeric conductive bump, an anisotropic conductive paste, and a  
4 conductive film coupled to a corresponding one of the plurality of leads.

1 10. (Original) The integrated circuit of Claim 1, wherein the current conductor portion has a  
2 current conductor portion axis and at least two of said one or more magnetic field transducers are  
3 disposed on opposite sides of the current conductor portion axis.

1 11. (Original) The integrated circuit of Claim 1, wherein at least two of said one or more  
2 magnetic field transducers are rotated relative to each other for providing predetermined voltage  
3 output polarities.

1 12. (Original) The integrated circuit of Claim 1, wherein at least a portion of said current  
2 conductor portion has a T-shaped cross section.

1 13. (Original) The integrated circuit of Claim 1, wherein at least a portion of said current  
2 conductor portion has a rectangular cross section having a minimum dimension less than a  
3 thickness of said lead frame.

1 14. (Original) The integrated circuit of Claim 1, further comprising at least one amplifier  
2 disposed on said substrate.

1 15. (Original) The integrated circuit of Claim 14, wherein the at least one amplifier provides an  
2 output signal proportional to a sum of signals generated by at least two of said one or more  
3 magnetic field transducers.

1 16. (Original) The integrated circuit of Claim 14, wherein the at least one amplifier forms a  
2 summing arrangement coupled to four of said one or more magnetic field transducers.

1 17. (Original) The integrated circuit of Claim 1, further comprising a flux concentrator disposed  
2 proximate said one or more magnetic field transducers.

1 18. (Original) The integrated circuit of Claim 1, further comprising a flux concentrating layer  
2 disposed proximate the second surface of said substrate.

1 19. (Original) A method of manufacturing an integrated circuit, comprising:  
2 providing a lead frame having a plurality of leads of which at least two are coupled  
3 together to form a current conductor portion; and  
4 etching the current conductor portion to provide the current conductor portion with a  
5 cross section having a predetermined shape selected to provide an increased flux density.

1 20. (Original) The method of Claim 19, wherein the predetermined shape comprises a T shape.

1 21. (Original) The method of Claim 19, wherein the predetermined shape comprises a  
2 rectangular shape having a minimum dimension less than a thickness of said lead frame.

1 22. (Original) The method of Claim 19, further comprising:  
2 mounting a substrate proximate said lead frame, the substrate having a first surface  
3 proximate to the current conductor portion and a second opposing surface disposed distal from  
4 the current conductor portion, wherein one or more magnetic field transducers are disposed on  
5 the first surface of the substrate.

1 23. (Original) The method of Claim 22, wherein the predetermined shape comprises a T shape.

1 24. (Original) The method of Claim 22, wherein the predetermined shape comprises a  
2 rectangular shape having a minimum dimension less than a thickness of said lead frame.

1 25. (New) An integrated circuit, comprising:  
2 a lead frame having a plurality of leads;  
3 a current conductor portion comprising a coupling of at least two of the plurality of leads,  
4 at least a portion of the current conductor portion having a cross section with a predetermined  
5 shape selected to provide an increased flux density;  
6 a substrate having first and second opposing surfaces, the first surface proximate to said  
7 current conductor portion and the second surface distal from said current conductor portion; and  
8 one or more magnetic field transducers disposed on the first surface of said substrate.

1 26. (New) The integrated circuit of Claim 25, wherein the cross section is generally T-  
2 shaped.

1 27. (New) The integrated circuit of Claim 25, wherein the cross section is generally  
2 rectangular having a smallest dimension less than a thickness of said lead frame.

1 28. (New) The integrated circuit of Claim 25, wherein said substrate is disposed having the  
2 first surface of said substrate above said current conductor portion and the second surface above  
3 the first surface when the leads are in electrical contact with an uppermost surface of a circuit  
4 board.

1 29. (New) An integrated circuit, comprising:  
2 a lead frame having a plurality of leads;  
3 a current conductor portion comprising a coupling of at least two of the plurality of leads,  
4 wherein the current conductor portion comprises a loop having an inner dimension;  
5 a substrate having first and second opposing surfaces, the first surface proximate to said  
6 current conductor portion and the second surface distal from said current conductor portion; and  
7 one or more magnetic field transducers disposed on the first surface of said substrate.

1 30. (New) The integrated circuit of Claim 29, wherein at least one of the one or more  
2 magnetic field transducers is disposed within the inner dimension.

1 31. (New) The integrated circuit of Claim 29, wherein at least a portion of said current  
2 conductor portion has a generally T-shaped cross section.

1 32. (New) The integrated circuit of Claim 29, wherein at least a portion of said current  
2 conductor portion has a generally rectangular cross section having a smallest dimension less than  
3 a thickness of said lead frame.

1 33. (New) The integrated circuit of Claim 29, wherein said substrate is disposed having the  
2 first surface of said substrate above said current conductor portion and the second surface above  
3 the first surface when the leads are in electrical contact with an uppermost surface of a circuit  
4 board.

1 34. (New) A method of manufacturing an integrated circuit, comprising:  
2 providing a lead frame having a plurality of leads of which at least two are coupled  
3 together to form a current conductor portion;  
4 providing a substrate having first and second opposing surfaces and at least one bonding  
5 pad disposed on the first surface;  
6 providing one or more magnetic field transducers disposed on the first surface of the  
7 substrate; and  
8 mounting the substrate to the lead frame so that the first surface of said substrate is above  
9 said current conductor portion and the second surface is above the first surface when the leads  
10 are in electrical contact with an uppermost surface of a circuit board, wherein the one or more  
11 magnetic field transducers are proximate to the current conductor portion.

1 35. (New) The method of Claim 34, wherein said mounting comprises coupling the at least  
2 one bonding pad to a corresponding one of the plurality of leads with a selected one of a solder  
3 ball, a gold bump, a eutectic and high lead solder bump, a no-lead solder bump, a gold stud  
4 bump, a polymeric conductive bump, an anisotropic conductive paste, and a conductive film.